1. A quantitative data set has been provided in the table. Create a dotplot of the data.

36	33	34	36	35
37	33	33	32	38
30	34	33	32	34

ОВ.

Select the correct answer below.







ID: 2.3.75

2.	A quantitative data set is provided in the table. Construct a	38	57	43	60	41
	stem-and-leaf diagram for the data, using one line per stem.	59	21	50	59	30

Choose the correct stem-and-leaf diagram.

○ A.	○ В.	<u>○</u> C.	○ D.
2 1	2 1	2 0 1	2 1
3 0 8	3 0 8	3 3 8	3 0 1 3 8
4 0 1 3 9	4 1 3	4 0 1	4 0 9
5 7 9	5 0 7 9 9	5 9 9	5 7 9
6 0	6 0	6 0 7	6 0

ID: 2.3.77

3. Construct a stem-and-leaf diagram for the accompanying data, using two lines per stem.

20 48 34 32 44 30 41 20 27 43 29 26 45 41 44 39 21 38 31 35

Complete the stem-and-leaf diagram with two lines per stem.



ID: 2.3.79

4.

A pediatrician tested the cholesterol levels of several young patients. The following relative-frequency histogram shows the readings for some patients who had high cholesterol levels.



Use the graph to answer the following questions. Note that cholesterol levels are always expressed as whole numbers.

5. Identify the distribution shapes that are symmetric.

ID: 2.3.103

ID: 2.4.131

a. What percentage of patients have cholesterol levels between 200 and 204,inclusive?



b. What percentage of patients have levels of 215 or higher?



c. If the number of patients is 20, how many have levels between 210 and 214, inclusive?



Select all that apply. A. B. C. D. A. F. G. H. A. F. G. H. 6. A smooth curve that represents a distribution is provided. Use this curve to do the following.

a. Identify the shape of the distribution with regard to modality.
b. Identify the shape of the distribution with regard to symmetry (or nonsymmetry).
c. If the distribution is unimodal and nonsymmetric, classify it as

c. If the distribution is unimodal and nonsymmetric, classify it as either right skewed or left skewed.



a. The distribution is (1) _____

- **b.** The distribution is (2)
- **c.** Choose the correct answer below.
- A. The distribution is left skewed.
- B. The distribution is right skewed.
- C. The distribution is symmetric.
- D. The distribution is not unimodal.

(1) O bimodal. (2) O nonsymmetric.

- O unimodal.
- multimodal.
- ID: 2.4.137
- 7. The frequency histogram for the speeds, in miles per hour, of a sample of 32 cheetahs is shown to the right. State whether the distribution is (roughly) symmetric, right skewed, or left skewed.



Which of the following best describes the given distribution?

- O A. The distribution is slightly left skewed.
- O B. The distribution is roughly symmetric.
- C. The distribution is slightly right skewed.
- ID: 2.4.141

 A sample of 54 rodent burrows, whose depths were measured in centimeters, yielded the frequency histogram to the right. State whether the distribution is (roughly) symmetric, right skewed, or left skewed.



Which of the following best describes the given distribution?

- O A. The distribution is roughly symmetric.
- O B. The distribution is left skewed.
- **C.** The distribution is right skewed.
- ID: 2.4.143
- 9. The heights of a sample of 50 players on the 2013 Baltimore Ravens football team were obtained. A dotplot of those heights, in inches, is shown to the right. State whether the distribution is (roughly) symmetric, right skewed, or left skewed.



Which of the following best describes the given distribution?

A. The distribution is left skewed because the left tail is longer than the right tail.

O B. The distribution is right skewed because the right tail is longer than the left tail.

○ C. The distribution is roughly symmetric because one tail is longer than the other.

- D. The distribution is left skewed because the right tail is longer than the left tail.
- C E. The distribution is right skewed because the left tail is longer than the right tail.
- F. The distribution is roughly symmetric because the tails are about the same length.

ID: 2.4.144

- 10. The stem-and-leaf diagram portrays the length of stay, in days, of a sample of 36 citizens who traveled outside the country last year. State whether the distribution is (roughly) symmetric, right skewed, or left skewed.
- $\begin{array}{cccc} 0 & 11123335568 \\ 1 & 000444444888 \\ 2 & 114449 \\ 3 & 12 \\ 4 & 11 \\ 5 & 6 \\ 6 & 0 \end{array}$

Which of the following best describes the given distribution?

- A. The distribution is left skewed.
- O B. The distribution is roughly symmetric.
- C. The distribution is right skewed.

ID: 2.4.149

11. Explain in detail the purpose of a measure of center.

Choose the correct answer below.

- O A. The purpose of a measure of center is to indicate where atypical values of a data set lie.
- O B. The purpose of a measure of center is to indicate the shape of a distribution.
- O C. The purpose of a measure of center is to indicate how far apart the lowest and highest values in a data set are.
- D. The purpose of a measure of center is to indicate where the center or most typical value of a data set lies.

ID: 3.1.1

12. Name and describe the three most important measures of center.

Choose the correct answer below.

- A. The mean, median, and mode are the most important measures of center. The mean of a data set is its arithmetic average. The median of a data set is the middle value in its ordered list. The mode of a data set is its most frequently occurring value.
- O B. The mean, sample size, and mode are the most important measures of center. The mean of a data set is the sum of the observations divided by the middle value in its ordered list. The sample size of a data set is the number of observations. The mode of a data set is its highest value in its ordered list.
- C. The sample size, median, and mode are the most important measures of center. The sample size of a data set is the difference between the highest value and lowest value in its ordered list. The median of a data set is its most frequently occurring value. The mode of a data set is sum of the observations divided by the number of observations.
- O D. The mean, median, and mode are the most important measures of center. The mean of a data set is the product of the observations divided by the number of observations. The median of a data set is the lowest value in its ordered list. The mode of a data set is its least frequently occurring value.

13. Consider the data set 3,4,5,6,7,8,9,10,11.

Complete parts (a) through (c) below.

a. Obtain the mean and median of the data.

The mean is _____. (Type an integer or a decimal. Do not round.)

The median is

(Type an integer or a decimal. Do not round.)

b. Replace the 11 in the data set by 101 and again compute the mean and median. Decide which measure of center works better here, and explain your answer.

The mean is _____. (Type an integer or a decimal. Do not round.)

The median is

(Type an integer or a decimal. Do not round.)

Which center of measure works better here?

- A. The mean works better here since it is more typical of most of the data.
- O B. Both centers of measure work equally well here. They are both typical of most of the data.
- C. Neither measure of center works for this data set. Neither measure of center is typical of most of the data.
- O D. The median works better here since it is more typical of most of the data.

c. For the data set in part (b), the mean is neither central nor typical for the data. The lack of what property of the mean accounts for this result?

- 🔾 A. The mean has a lower probability of being observed. Whereas observations in the data set have been observed and are likely
- **B.** The mean is not constant. Since the mean changes depending on the observations in the data set and/or the number of observations, the mean cannot be representative of the underlying population.
- C. The mean is not resistant to outliers. Since the 11 in the data set was replaced by 101, the mean is pulled in that direction due to that single observation, and is therefore neither central nor typical for the data.

ID: 3.1.5

14. Complete the following statement: A descriptive measure is resistant if...

Choose the correct answer below.

- O A. Changing particular data values affects its value substantially.
- **B.** It is sensitive to the influence of a few extreme observations.
- C. An estimate of its value is extremely close to its actual value.
- O D. It is not sensitive to the influence of a few extreme observations.

15. A board of governors publishes information on family net worth. In 2010, the mean net worth of families in a particular country was \$489.2 thousand and the median net worth was \$78.8 thousand. Which measure of center do you think is more appropriate? Explain your answer.

Choose the correct answer below.

- O A. The median because it is not strongly affected by the relatively few families with extremely high net worth.
- O B. The mean because it takes into account each family's net worth in the country.
- **C**. The mean because it is not strongly affected by the relatively few families with extremely high net worth.
- O D. The mean because it is not strongly affected by the relatively few families with extremely low net worth.
- O E. The median because it takes into account each family's net worth in the country.
- **F.** The median because it is not strongly affected by the relatively few families with extremely low net worth.

ID: 3.1.8

16. Each year, a magazine compiles a list of the 400 richest Americans. As of September 19, 2012, 8 of the top 10 are as shown in the following table. Complete parts (a) through (c) below.

Person	Wealth (\$ billions)
Bill Gates	66.0
Christy Walton and family	27.9
Charles Koch	31.0
David Koch	31.0
S. Robson Walton	26.1
Alice Walton	26.3
Jim Walton	26.8
Michael Bloomberg	25.0

a. Find the mean.

The mean is

(Type an integer or decimal rounded to two decimal places as needed.)

b. Find the median.

The median is

(Type an integer or decimal rounded to two decimal places as needed.)

c. Find the mode(s). Select the correct choice below and, if necessary, fill in the answer box within your choice.

A. The mode(s) is(are)
 .
 (Type an integer or a decimal. Do not round. Use a comma to separate answers as needed.)

B. There is no mode.

- 17. The data below are the frequency of cremation burials found in 17 archaeological sites.
 - **a**. Obtain the mean, median, and mode of these data.
 - **b**. Which measure of center do you think works best here?

-	82	65	46	49	514	33	32	263	2466
	46	377	24	86	430	58	252	124	

a. The mean is . (Round to one decimal place as needed.)

The median is . (Round to one decimal place as needed.)

Select the correct choice below and fill in any answer boxes within your choice.

○ A. The mode is . (Round to one decimal place as needed.)

O B. There is no mode.

b. Which measure of center works best here?

- O A. Each center of measure works equally well.
- O B. The mode works best. The median is highly affected by the largest value and the mean is well to the left of the distribution's center.
- C. The mean works best. The mode is highly affected by the largest value and the median is well to the left of the distribution's center.
- O D. The median works best. The mean is highly affected by the largest value and the mode is well to the left of the distribution's center.

ID: 3.1.27

- 18. In 2000, for a certain region, 25.1% of incoming college freshman characterized their political views as liberal, 20.2% as moderate, and 54.7% as conservative. For the current year, a random sample of 400 incoming college freshman yielded the frequency distribution for political views shown below.
 - a. Determine the mode of the data using the given frequency distribution.
 - **b.** Decide whether it would be appropriate to use either the mean or the median as a measure of center. Explain your answer.

Political view	Frequency
Liberal	77
Moderate	80
Conservative	243

- a. Choose the correct answer below. Select all that apply.
- **A.** The mode is conservative.
- **B.** The mode is moderate.
- **C.** The mode is liberal.
- **D.** There is no mode.

b. Would it be appropriate to use either the mean or the median as a measure of center?

- A. The mean would be an appropriate measure of center because the political views of freshman in the sample is very similar to the percentages of all freshman.
- B. Since the data is qualitative, neither the mean nor the median can be used as a measure of center.
- C. Either the mean or the median would be an appropriate measure of center since they are approximately the same.
- O D. The median would be an appropriate measure of center because it is not strongly affected by the relatively large gap between the smallest and largest frequencies.

^{19.} Explain the difference between the quantities $(\sum x_i)^2$ and $\sum x_i^2$. Construct an example to show that, in general, those two quantities are unequal.

Choose the statement that best states the difference between the two expressions.

- A. The expression $(\sum x_i)^2$ represents the square of the sum of the squares of the data, whereas $\sum x_i^2$ represents the sum of the squares of the data.
- \bigcirc B. The expression $(\sum x_i)^2$ represents the square of the sum of the data, whereas $\sum x_i^2$ represents the sum of the squares of the data.
- \bigcirc **c**. There is no difference between the expression $(\sum x_i)^2$ and the expression $\sum x_i^2$.
- O D. The expression $\sum x_i^2$ represents the square of the sum of the data, whereas $(\sum x_i)^2$ represents the sum of the squares of the data.

Use the table to the right to find the values of each expression. Consider three observations on x as presented in column 1 of the table, and consider each observation's square, as presented in column 2.



ID: 3.1.55

20. Explain the purpose of a measure of variation.

Choose the correct answer below.

- A. The purpose of a measure of variation is to capture the degree to which observations differ among themselves and to describe the center of the observations.
- O B. The purpose of a measure of variation is to characterize the elements of a data set and to describe the center of the observations.
- C. The purpose of a measure of variation is to show the amount of variation or spread in a data set, and to capture the degree to which observations differ among themselves.
- O D. The purpose of a measure of variation is to describe the center of the observations and show how the observations differ from each other.

ID: 3.2.57

21. Why is the standard deviation preferable to the range as a measure of variation?

Select the correct answer below.

- A. The standard deviation is preferable to the range as a measure of variation because the standard deviation is always smaller than the range.
- O B. The standard deviation is preferable to the range as a measure of variation because it is optimal when the median is used as the center of measure.
- C. The standard deviation is preferable to the range as a measure of variation because the standard deviation takes into account
- O D. The standard deviation is preferable to the range as a measure of variation because the standard deviation is resistant to outliers, whereas the range is not.

ID: 3.2.58

22. When you use the standard deviation as a measure of variation, what is the reference point?

The reference point is the (1)					
 (1) minimum. mode. median. mean. 	o maximum. o range.				
ID: 3.2.59					

23. Consider the following four data sets in the table below. Complete parts (a) through (g) below.

¹ Click the icon to view the four data sets. a. Compute the mean of each data set. x (Data Set I) x (Data Set II) x (Data Set IV) x (Data Set III) = (Type integers or decimals. Do not round.) **b.** Although the four data sets have the same means, in what respect are they quite different? A. Each data set has a unique median. B. The amount of variation within each data set differs among the data sets. C. The amount of variation within each data set is the same among the data sets, but with different values. D. The data sets are not different as the four data sets are identical. c. Which data set appears to have the least variation? the greatest variation? Data set (1) ______ appears to have the least variation. Data set (2) ______ appears to have the greatest variation. d. Compute the range of each data set. Range (Set I) Range (Set II) Range (Set III) = Range (Set IV) (Type integers or decimals. Do not round.) e. Use the defining formula to compute the sample standard deviation of each data set. s (Set II) s (Set I) = = s (Set III) = s (Set IV) = (Type integers or decimals. Round to one decimal place as needed.) f. From your answers to parts (d) and (e), which measure of variation better distinguishes the spread in the four data sets: the range or the standard deviation? Explain your answer. 🔿 A. The standard deviation distinguishes spread better because it is resistant to outliers, and is therefore more robust than the range. O B. The range distinguishes spread better because it shows that the sets are structurally similar, because their extrema are equally spread out. ○ C. The range distinguishes spread better because it shows that having different standard deviations doesn't imply that the means must be different. O D. The standard deviation distinguishes spread better because it shows that the sets are structurally different, despite having similar ranges and means. g. Are your answers from parts (c) and (e) consistent? A. Yes, because there is a correlation between the range and the standard deviation of the data sets. O B. Yes, because the minimum and maximum standard deviations correspond to the data sets with the least and greatest variation, respectively. C. No, because it is not necessary that greater variation and greater standard deviation are correlated. O. D. No, because the minimum and maximum standard deviations do not correspond to the data sets with the least and greatest variation, respectively.

1: Data Sets

Data	ta Set I Data Set II		Data	Set III	Data Set IV		
1	6	1	9	5	5	2	4
1	6	1	9	5	5	2	6
2	8	1	9	5	5	3	6
3	9	1	9	5	5	3	10
5	9	1	9	5	5	4	10

ID: 3.2.62

24. Each year, tornadoes that touch down are recorded. The following table gives the number of tornadoes that touched down during each month of one year. Determine the range and sample standard deviation.

2	4	45	123	208	94
63	88	67	61	114	92



s = _____ (Round to two decimal places as needed.)

ID: 3.2.73

s =

25. In the article "Material Culture as Memory: Combs and Cremations in Early Medieval Britain", H. Williams discusses the frequency of cremation burials found in 17 archaeological sites in eastern England. Data for a sample of 15 of the 17 sites can be found below. Complete parts (a) and (b) below.

48	34	385	265	119	51	35	46
2484	523	64	429	258	21	86	

a. Obtain the sample standard deviation of these data.

(Round to one decimal place as needed.)

b. Do you think that, in this case, the sample standard deviation provides a good measure of variation? Explain your answer.

- A. In this case, the sample standard deviation does not provide a good measure of variation. For sample sizes smaller than 20 that are roughly symmetric, the range provides a better measure of variation.
- B. In this case, the sample standard deviation does not provide a good measure of variation, because it is not resistant to outliers. Therefore, its value is strongly affected by a few extreme observations.
- C. In this case, the sample standard deviation provides a good measure of variation, because the sample size is greater than 10 and is roughly symmetric.
- D. In this case, the sample standard deviation provides a good measure of variation, because it is preferable to the range and interquartile range for standard data sets.

ID: 3.2.79

26. The heights, in inches, of the five starting players on each of two basketball teams are shown in Data set 1. Use this information to answer the question.

Click here to view the StatCrunch report.

Identify all of the following that are measures of variation. Select all that apply.

□ A.	Variance
🗌 B.	Median
🗌 C.	Range
🗌 D.	Standard Deviation
🗌 E.	Mean
🗌 F.	Mode
s •חו	2 50 83

27. Each of the following smooth curves represents the shape of a data set. In each case, decide whether application of the empirical rule to the data set is appropriate. Explain your answers.

² Click the icon to view the curves that represent the shape of data sets.

Decide whether application of the empirical rule is appropriate for curve a. Select the correct answer below.

- A. The empirical rule is appropriate. The data set is quantitative and the distribution is roughly bell-shaped, so the empirical rule provides better estimates of the location of the observations than Chebyshev's rule.
- **B.** The empirical rule is inappropriate. The data set is qualitative, so the curve cannot represent the data faithfully. Therefore, Chebyshev's rule provides better estimates of the location of the observations than the empirical rule.
- **C.** The empirical rule is appropriate. The data set is quantitative and k is a real number greater than or equal to 1, so the empirical rule provides better estimates of the location of the observations than Chebyshev's rule.
- D. The empirical rule is inappropriate. The data set is quantitative, but the distribution is asymmetric. Therefore, Chebyshev's rule provides better estimates of the location of the observations than the empirical rule.

Decide whether application of the empirical rule is appropriate for curve b. Select the correct answer below.

- A. The empirical rule is inappropriate. The data set is quantitative, but the distribution is asymmetric. Therefore, Chebyshev's rule provides better estimates of the location of the observations than the empirical rule.
- **B.** The empirical rule is appropriate. The data set is quantitative and the distribution is roughly bell-shaped, so the empirical rule provides better estimates of the location of the observations than Chebyshev's rule.
- C. The empirical rule is inappropriate. The data set is qualitative, so the curve cannot represent the data faithfully. Therefore, Chebyshev's rule provides better estimates of the location of the observations than the empirical rule.
- D. The empirical rule is appropriate. The data set is quantitative and k is a real number greater than or equal to 1, so the empirical rule provides better estimates of the location of the observations than Chebyshev's rule.

Decide whether application of the empirical rule is appropriate for curve c. Select the correct answer below.

- A. The empirical rule is appropriate. The data set is quantitative and k is a real number greater than or equal to 1, so the empirical rule provides better estimates of the location of the observations than Chebyshev's rule.
- **B.** The empirical rule is inappropriate. The data set is qualitative, so the curve cannot represent the data faithfully. Therefore, Chebyshev's rule provides better estimates of the location of the observations than the empirical rule.
- C. The empirical rule is appropriate. The data set is quantitative and the distribution is roughly bell-shaped, so the empirical rule provides better estimates of the location of the observations than Chebyshev's rule.
- D. The empirical rule is inappropriate. The data set is quantitative, but the distribution is asymmetric. Therefore, Chebyshev's rule provides better estimates of the location of the observations than the empirical rule.

2: Curves for Data Sets





28. The quantitative data set under consideration has roughly a bell-shaped distribution. Apply the empirical rule to answer the following question.

A quantitative data set has mean 24 and standard deviation 3. Approximately what percentage of the observations lie between 18 and 30?

Approximately % of the observations lie between 18 and 30. (Type an integer or a decimal. Round to one decimal place as needed.)

ID: 3.3.122

29. The quantitative data set under consideration has roughly a bell-shaped distribution. Apply the empirical rule to answer the following question.

The data set has size 40. Approximately how many observations lie within two standard deviations to either side of the mean?

Approximately ______ observations lie within two standard deviations to either side of the mean. (Round to the nearest whole number as needed.)

ID: 3.3.126

30.

Roughly, when arranged in increasing order, the uppermost 25% of a data set are greater than or equal to (1) _____

(1) 🔘 Q ₃ .	the upper limit.
the lower limit.	○ Q ₂ .
🔘 Q ₁ .	🔘 the IQR.
O the median.	

ID: 3.4.158

31. Provided below is a simple data set for you to practice finding descriptive measures. For the data set, complete parts (a) through (c) below.

2, 0, 4, 0, 1, 0, 2, 0, 4, 0, 1,	2,	3,	4,	5,	7,	8,	2,	З,	4,	5,	7,	8
----------------------------------	----	----	----	----	----	----	----	----	----	----	----	---

a. Obtain the quartiles.

Q ₁ =	
Q ₂ =	
Q ₃ =	

(Type integers or decimals. Do not round.)

b. Determine the interquartile range.

The interquartile range is		. (Type an integer or a decimal. Do not round.)
----------------------------	--	---

(Type integers or decimals. Do not round. Use ascending order.)

ID: 3.4.164

32. Wayne Gretzky, a retired professional hockey player, played 20 seasons in the National Hockey League (NHL), from 1980 through 1999. The accompanying table shows the number of games in which Gretzky played during a sample of 16 of his seasons in the NHL. Complete parts (a) through (e) below.

³ Click the icon to view a sample of the games played data.

a. Obtain and interpret the quartiles.

Determine the quartiles.

Q ₁ =	
Q ₂ =	
Q ₃ =	

(Type integers or decimals. Do not round.)

Interpret the quartiles. Choose the correct answer below.

- A. The quartiles suggest that Gretzky played less than Q₁ games in 33% of the seasons, between Q₁ and Q₃ games in 33% of the seasons, and more than Q₃ games in 33% of the seasons.
- \bigcirc **B.** The quartiles suggest that Gretzky played between Q₁ and Q₃ games in all of the seasons.
- C. The quartiles suggest that Gretzky played less than Q₁ games in 25% of the seasons, between Q₁ and Q₂ games in 25% of the seasons, between Q₂ and Q₃ games in 25% of the seasons, and more than more than Q₃ games in 25% of the seasons.
- D. The quartiles suggest that the average number of games played in a season is Q₂.

b. Determine and interpret the interquartile range.

The interquartile range is _____. (Type an integer or a decimal. Do not round.)

Interpret the interquartile range. Choose the correct answer below.

- A. The approximate difference between each quartile is the IQR.
- O B. The data span roughly the IQR.
- C. The number of games played in the middle 50% of seasons spans roughly the IQR.
- O D. The average of the first quartile and the third quartile is the IQR.
- c. Find and interpret the five-number summary.

Determine the five-number summary.

		,		,		,		,	
(Type integers c	r	decimals. Do no	ot	round. Use asce	ər	nding order.)		

Interpret the five-number summary. Choose the correct answer below.

- A. The distance between the median and the third quartile and the distance between the third quartile and the maximum have more variation than the distance between the minimum and the first quartile and the distance between the first quartile and the median.
- B. The distance between the third quartile and the maximum has the greatest variation. The distance between the median and the third quartile has the least variation.
- C. The distance between the minimum and the first quartile and the distance between the first quartile and the median have more variation than the distance between the median and the third quartile and the distance between the third quartile and the maximum.
- O D. The distance between the minimum and the first quartile has the greatest variation. The distance between the first quartile and the median has the least variation.

d. Identify potential outliers, if any. Choose the correct answer below and, if necessary, fill in the answer box to complete your choice.

A. The potential outlier(s) is(are)
 (Type an integer or a decimal. Do not round. Use a comma to separate answers as needed.)

e. Obtain and interpret a boxplot.

Construct the boxplot. Choose the correct graph below.



Interpret the boxplot. Select all that apply.

- A. Gretzky played between 71.5 and 80 games in a majority of seasons.
- **B.** The number of games played varies from 45 to 82.
- **C.** There is more variation in the first quarter than in any of the other quarters.
- D. The distribution of the data is significantly left skewed.
- **E.** The potential outlying observations fall far from the rest of the data.

3: Sample of Games Played

79	80	80	74
80	79	64	78
73	78	45	81
48	82	82	70

ID: 3.4.167

33. Researchers in obesity wanted to compare the effectiveness of dieting with exercise against dieting without exercise. Seventy-three patients were randomly divided into two groups. Group 1, composed of 38 patients, was put on a program of dieting with exercise. Group 2, composed of 35 patients, dieted only. The results for the weight loss, in pounds, after 4 months are summarized in the following boxplots. The top boxplot is for Group 1 and the bottom boxplot is for Group 2. Use the boxplots to compare the weight losses for the two groups, paying special attention to center and variation.



Choose the correct answer below.

- A. The weight losses for the two groups are, on average, roughly the same. However, there is less variation in the weight losses of Group 1 than of Group 2.
- O B. The weight losses for the two groups are, on average, roughly the same. However, there is less variation in the weight losses of Group 2 than of Group 1.
- C. Group 2 lost more weight, on average, than Group 1.
- \bigcirc D. The variation in weight loss between both groups is the same. The center of Group 2 falls higher than Group 1.

ID: 3.4.179

34. A study published in a reputable medical journal examined the steady-state hemoglobin levels of patients with three different types of sickle cell disease: HB SC, HB SS, and HB ST. Use the accompanying boxplots to compare the hemoglobin levels for the three groups of patients, paying special attention to center and variation.

⁴ Click the icon to	o view the boxplots.			
On average, the	hemoglobin levels for (1)	are rou	ughly the same, and both(2) that of
(3)	Also, the variation in hemo	globin levels appea	ars to be greatest for (4)	and least for
(5)				
4: Boxplots				
	14- 13- 12- 		Ē	



10-

35. L. Petersen et al. evaluated the effects of integrated treatment for patients with a first episode of psychotic illness in a paper published by the British Medical Journal. Part of the study included a questionnaire that was designed to measure client satisfaction for both the integrated treatment and a standard treatment. The data in the accompanying table are a sample of the results of the client questionnaire. Complete parts (a) and (b) below.
⁵ Click the icen to view the data from the study.

⁵ Click the icon to view the data from the study.

a. Use the technology of your choice to obtain boxplots for the data sets, using the same scale. Choose the correct graph below.



b. Compare the data sets by using your results from part (a), paying special attention to center and variation.

The center of the integrated data is (1) ______ the center of the standard data. The integrated data varies (2) _____ the standard data.

5: Study Results

	Int	tegrat	ed		Standard					
20	29	25	25	25	29	9	11	24	23	
27	27	24	19	29	28	13	23	30	12	
21	20	22	28	21	14	13	22	33	19	
24	30	27	16	30	9	25	14	31	14	
21	24	22	19	20	26	28	31	15	23	
29	28	23	26	22	15	22	30	23	26	
29	29	25	18	26	25	21	29	25	18	
23	21	20	25	32	24	34	31	19	9	
26	31	28	32	22	17	30	14	20	17	
21	33	25	29	30	22	13	36	14	21	
28	15	25	22	28	33	13	29	18	31	
11	34	18	24	31	25	27	15	16	23	
17	28	18	22	26	28	16	25	28	24	
23	27	26	28	23	27	20	16	21	21	
31	26	27	20	28	23	20	32	24	29	
26	30	33	26	28	28	19	31	32	17	
21	17	23	18	20	14	21	24	21	25	
33	22	33	30	18	26	21	18	30	19	
22	28	28	26	24	35	19	23	8	27	
29	19	26	23	26	21	36	17	34	33	
29	21	23	22	31	32	26	23	22	28	
23	23	23	20	24	23	31	17	16	34	
21	24	29	26	31	18	23	13	31	25	
25	29	29	27	19	35	20	17	29	13	
22	24	20	24	22	28	24	29	24	23	
29	20	30	27	19	26	37	20	13	30	
18	20	22	26	20	23	39	10	18	37	
25	21	31	26	19	14	13	33	20	27	
29	33	23	22	26	33	19	29	29	10	
27	23	18	25	24	29	22	24	18	27	
26	26	27	23	20	10	17	29	32	22	
30	28	30	15	26	18	25	29	40	18	
19	21	22	31	11	17	19	21	22	7	
24	20	25	30	24	16	20	39	21	25	
34	29	21	26	27	14	26	27	28	6	
28	33	18	22	29	39	15	22	33	18	
25	25	26	25	25	27	20	28	15	22	
17	28	25	30	16	23	28	20			
25	27	24	31	29						
32	35	25	19	27						
24	28	16	32	27						
27	27	29	30	24						
21	29	24	26	26						
27	28	21	20	28						
22	32	33								

(1) 🔘 lower than

- the same as
- higher than
- (2) O less than
 O as much as
 O more than

ID: 3.4.188